

## **SENSING, INTERROGATING, STORING, TELEMETERING AND RESPONDING MEDICAL IMPLANTS**

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### **Abstract of the Disclosure**

Implants and implants, including sensors responsive to pressure, fluid flow, concentration of analytes, pH and other variables, including a feedback loop and means for modifying the implant after placement in a patient in response to measurements made using the sensors, have been developed. These are particularly useful in cardiology, where the implants contain one or more sensors responsive to variables which change over time, for example, pressure which is indicative of changes in fluid flow and diameter of the vessel in which the implant has been placed. Feedback from the sensor(s) either directly, or indirectly via monitoring means external to the patient, signal changes that may be required, such as expansion of the implant in the case where the vessel diameter changes over time or the implant becomes unstable or migrates. In another embodiment, the implant contains a bioactive, prophylactic, diagnostic or pH modifying agent wherein the implant is formed of a temperature or pH responsive material so that the agent is released when the temperature or pH is altered. These systems can also be used to connect a patient to a remote data storage system, such as the internet or a computer accessible through devices such as PDA (Palm Pilot systems), phone system devices (portable phones, answering services, beepers, office fax machines), that the physician or nurse can monitor or use to interact remotely with the implant.